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# THE AGRICULTURAL • SITUATION •

MAY 1943

*A Brief Summary of Economic Conditions*

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## IN THIS ISSUE

	Page
Commodity Reviews.....	Franklin Thackrey 2
Action on the Feed Grain Front.....	Malcolm Clough 9
Farm Employment in 1943.....	Louis J. Ducoff 11
Laboratories at War.....	Gove Hambidge 14
Farm Machinery.....	A. P. Brodell 17
Wartime Changes in Cow Numbers.....	R. G. Wheeler 21
Cotton Supplies and Production.....	Horace G. Porter 22

NOW in progress at Hot Springs, Va., is the United Nations Food Conference, the first broad-scale international meeting of its kind ever held. Attended by representatives from countries throughout the world, including all major allied powers, this conference represents the first beginnings of a world-wide approach toward determining the food requirements and deficiencies of the war and post-war era \* \* \* With Chester C. Davis drafted by the President to serve as Food Administrator, the Department of Agriculture's war programs are pushing ahead with plans for expanded food production \* \* \* Government efforts to control the rising costs of living and to prevent runaway price increases, backed up by the President's "hold the line" order of April 8, are becoming increasingly effective. Control of prices and elimination of black market operations at home are equally important to the civilian population and the armed forces \* \* \* Despite the heavy migration of farm workers to cities and the fighting forces since the war started, the total number of workers employed in agriculture is about as large as before the war. Replacements for workers who have left the farms consist mainly of farm family members who previously did little or no work on the farms.

## Commodity Reviews

### FEED: Prospects for 1943-44

Feed prospects are for production of corn, oats, barley, and grain sorghums totaling 11 percent less than in 1942 (assuming March 1 intended acreage and average yields). The 1943-44 supply may be 10 to 15 percent smaller in relation to the number of livestock on farms than that for the current feeding year. Reduced reserve stocks, increased grain imports, and reduced feeding per grain consuming animal unit are possibilities.

From January through March disappearance of corn was 14 percent greater than for the corresponding period of 1942, and disappearance of oats was 23 percent greater. If the present rate of disappearance continues, carry-over of corn on October 1 will be less than 500 million bushels. The carry-over on July 1 may be around 225 million bushels. Stocks of corn and oats on April 1 were 6 percent larger this year than last, but livestock numbers are increasing. Supplies of wheat millfeeds and high-protein feeds, though large, have been short of demand.

In view of feed prospects, the War Food Administration on April 10 advised hog producers not to increase breedings for fall litters by more than 15 percent above 1942. An increase of only 5 percent, combined with the large spring crop, would meet the overall goal of 15 percent more pigs in 1943.

WFA also announced that steps are being taken to import feed to supplement supplies in the Northeastern, Southeastern and Southwestern coastal areas; that loans outstanding on 1938-41 corn were being called; and that, if these measures do not provide enough corn for immediate industrial requirements, commercial stocks will be requisitioned for use by essential war industries.

Commodity Credit Corporation by

April 30 had loaned an average of 77 cents a bushel on 56 million bushels of 1942 corn. A year earlier, nearly twice as much corn had been placed under loan. Loans outstanding April 30 on the 1942 crops of other grains included, roughly, 7.4 million bushels of barley; 552,000 bushels of flaxseed; 30,000 bushels of grain sorghums; 4.1 million bushels of rye.

Linseed oil meal, cake, and pellets were put under price control in April, with specific dollars-and-cents ceilings set at points below price levels then current. The crusher's maximum price at Minneapolis, set by OPA, was \$40 a ton for meal or cake in bulk and \$43.50 per ton sacked. Ceilings for pea size meal and pellets are \$1.50 a ton above those for sacked meal. A differential of \$1 a ton is allowed where shipments are in less than carload lots. Jobbers are allowed maximum mark-ups of 50 cents a ton in carload lots and \$1 in less than carload lots. The wholesalers' maximum mark up is \$2.50 and the retailers', \$5.50.

The Office of Price Administration raised the ceiling price of yellow corn 5 cents a bushel effective April 14, and announced there would be no further increase in corn price ceilings during the crop year ending September 30. This action increased ceiling prices for yellow corn produced in the central part of the United States, corn at principal terminal markets, and peak quotations for corn futures on the grain exchanges.

"Designed to encourage the immediate movement of corn," OPA explained, "the move should relieve the present acute market shortage of the yellow cereal for feeding livestock and industrial processing."

No increase in corn prices was permitted on the east or west coasts. In order to make corn available without increasing poultry and dairy feed prices in New England, the Atlantic seaboard and the Southeast, Commod-

ity Credit Corporation will sell corn in those areas at the old ceiling prices applicable there.

Initial purchase of 7¼ million bushels of Canadian wheat for feed, to help maintain dairy and poultry production in New England and the Middle Atlantic States, was announced April 21 by the War Food Administration.

### INCOME: Marketings

Cash income from farm marketings in the first three months of 1943 totaled 3,690 million dollars—35 percent more than in the same period of 1942. Income from all groups of farm products increased sharply. Returns from oil-bearing crops were nearly 3 times as great as a year earlier. Income from cotton and wheat also was markedly higher. Poultry and eggs made the largest gain, in the livestock group but returns from meat animals and dairy products also have been substantially higher.

Government payments in the first quarter of 1943 were 271 million dollars—almost exactly the same as in the first quarter of 1942.

### DAIRYING: Labor Plan

Return of qualified workers to dairy farms is the goal of a plan announced early in April by the Selective Service Bureau of the War Manpower Commission. Points in the plan include cooperation with USDA War Boards in getting experienced men between 18 and 45, who are deferred through physical handicap, and other men over 45, to return to dairy farms if they are not engaged in other "essential" work; making men up to 45 with or without dependents liable for military service unless they enter agriculture or some other essential activity before specified dates; agreement with the War Department that men discharged after reaching their 38th birthday, except under certain conditions, will be subject to recall for military service unless they engage in agriculture or other essential work.

*Production:* Milk production in the second quarter may be slightly larger this year than last, although the prospective tight feed situation could cause some decline in total milk output in the last half of this year. The total quantity of dairy products available per person for civilians, on a butterfat basis, may be about 10 percent below last year's record high. Quantities of fluid milk and cream, however, may be slightly greater.

Milk production on farms from January through March totaled 26,912 million pounds—about 1 percent above production in the same months last year. On March 15, the price of butterfat averaged 118 percent of parity, and the price of milk 120 percent of parity. The pounds of feed (as a national average) which could be purchased with 1 pound of butterfat totaled 26.7, compared with 27.5 pounds a month earlier, 21.4 pounds a year earlier, and the 1922-41 average for March of 24.8 pounds. The milk-feed ratio March 15 was 1.38, as compared to 1.43 a month earlier, 1.26 a year earlier, and 1.21, the 20-year average for March.

*Cheese:* Tentative new U. S. standards for grades of American Cheddar cheese announced April 29 by the War Food Administration specify appropriate characteristics for each grade of cheese at different ages. For grading purposes, fresh or current make of cheese is approximately 1 month old or less; medium cured refers to cheese approximately 1 to 5 months old; and cured or aged cheese is over 5 months old.

### POULTRY AND EGGS

Hens laid 21.5 billion eggs from January through April—15 percent more than in the same period last year, and a new record. Production per hen in March set a new high for the month. That for April was the third highest on record. The number of young chickens on farms May 1 was 12 percent larger than on May 1, 1942.

In terms of national averages, a

dozen eggs on March 15 would buy 17.7 pounds of poultry feed—3.3 pounds more than the 1932-41 March average, and the most on record for that month. A pound of chickens would buy 12.3 pounds of feed—or 0.4 pound less than the 10-year April average. Therefore, at ceiling prices it has been more profitable to produce eggs than fowl, and sales of the latter in January-April were relatively small. For 1943 as a whole, supplies of chickens are expected to be much larger than in 1942. Most of the increase in marketings will occur from July through December.

Seasonal increases in egg ceiling prices to retailers from spring to fall, authorized by OPA, were not much different from seasonal price increases of recent years. Nevertheless, the demand for storing increased considerably when the ceilings were announced, and wholesale prices for shell eggs advanced relative to ceiling prices to retailers and relative to ceiling prices for dried eggs. The Food Distribution Administration on March 23 ordered all shell eggs in cold storage May 31 to be set aside for governmental agencies, announced that no shell eggs could be stored after May 31, except for Government purchase. It reserved the entire 1943 production of spray process dried whole eggs for delivery to governmental agencies.

#### LIVESTOCK: Ceilings Studied

Procedures for placing ceiling prices on live hogs if and when necessary were being worked out in mid-April, the War Food Administration announced. Consideration also was being given to alternate methods of bringing about a readjustment of live cattle prices.

WFA indicated that such measures would be put into effect if meat rationing and the campaign against black markets does not bring about a downward adjustment in live animal prices, relieving the squeeze between them and wholesale meat prices within "a reasonable time." Hog prices at the

time of the announcement were above levels expected to be reflected by the wholesale pork ceilings, but declined after the announcement was made.

The support price for hogs was increased from \$13.25 to \$13.75 per hundred pounds, until September 30, 1944.

#### VEGETABLES: Price Supports

*Dry Beans, Peas:* New support prices were announced April 8 for dry beans and dry peas. At the same time, payments for Irish potatoes and truck crops were announced for that part of the production which is between 90 and 110 percent of the farm goals.

New support price for U. S. No. 1 dry beans of the 1943 crop is \$6.50 per hundred pounds, cleaned and bagged in carlots, f. o. b. carrier, at country shipping points, for Pea, Great Northern, Small White, Flat Small White, Pinto, Pink, Small Red and Cranberry varieties; and \$7.50 per hundred pounds for Lima, Baby Lima, Light Red Kidney, Dark Red Kidney and Western Red Kidney. In addition, Commodity Credit Corporation will make loans on thrasher-run beans at \$5.50 per hundred pounds for U. S. No. 1, \$5.35 for U. S. No. 2, and \$5.10 for U. S. No. 3. No. 2 beans will be bought at a discount of 15 cents per hundred from the prices for No. 1 beans. If the weather makes it necessary to buy No. 3 beans in order to have enough, they will be bought at a discount of 40 cents from the prices for No. 1 beans.

To encourage harvesting of additional blackeye peas in the South, the Department of Agriculture will buy them at \$5.75 per hundred pounds of cleaned and bagged U. S. No. 1 peas, delivered to points designated by county AAA committees. Purchase price will be \$5.60 per hundred pounds for U. S. No. 2 peas, and \$5.35 per hundred for U. S. No. 3 peas.

New support price for smooth dry edible peas grown in the Northwest is \$5.65 per hundred pounds for U. S.

No. 1, and \$5.40 for U. S. No. 2, f. o. b. carrier at country shipping points. Growers also will be offered a loan on thresher-run smooth dry edible peas of specified varieties at \$4.50 per hundred pounds for U. S. No. 1, and at \$4.25 for U. S. No. 2, with discounts for lower grades.

### TRUCK CROPS: Production

Here are highlights of a report issued early in April on the indicated production of commercial truck crops for fresh market:

*Lima beans*, Florida, about the same as in 1942 and 34 percent above the 1934-41 average. *Snap beans*, early (2) States (California, Florida, Texas), 35 percent above 1942 and 27 percent above the 1932-41 average. *Beets*, second early, (Louisiana, South Carolina), 77 percent of 1942 and 54 percent of 1932-41. *Cabbage*, second early (Alabama, Georgia—south, Louisiana, Mississippi, North Carolina, South Carolina and Virginia) around 76 percent of 1942 and 64 percent of 1932-41. *Carrots*, second early (Arizona, California, Louisiana), 80 percent above 1942 and 91 percent above 1932-41. *Celery*, second early sections of California and Florida, around 88 percent of 1942 and about the same as 1932-41. *Onions*, early, (Texas, Louisiana, California) 31 percent below 1942 and slightly less than the 1932-41 average. *Green peas*, second early (California—other, Georgia, Mississippi, South Carolina), 20 percent above 1942 and 69 percent of 1932-41. Commercial early *Irish potatoes*, early (1) sections of North Florida and Texas Lower Valley, 79 percent of 1942 and 87 percent of 1932-41. *Spinach*, second early (Arkansas, Illinois, Maryland, Missouri, New Jersey, Pennsylvania, Virginia, and Washington), 4 percent above 1942 and about the same as the 1932-41 average. *Strawberries*, second early (Arkansas, California—south, North Carolina, South Carolina, Tennessee, Virginia), 70 percent of 1942 and slightly below 1932-41.

### WHEAT: Outlook

Wheat production in 1943 may total around 685 million bushels. Production of winter wheat indicated by the May 1 crop report was around 515 million bushels. The total assumes average yields of spring wheat on around 14,700,000 planted acres as indicated by the March prospective plantings report. Production of all wheat last year was 981 million bushels and the 1932-41 average was nearly 738 million. Other estimates: carryover July 1, 1943, about 615 million bushels; carryover July 1, 1942, 632 million; domestic supplies in 1943-44, 1,300 million bushels; domestic supplies in 1942-43, 1,613 million bushels; disappearance in 1943-44, roughly 1.1 billion bushels; disappearance in 1942-43, 1 billion—the largest since 1920. Carryover July 1, 1944, may be below 300 million bushels or less.

Unusually heavy disappearance is expected to result from use of more wheat for food, along with use for feed and alcohol. Any wheat that may be imported probably will be for feed.

Commodity Credit Corporation had loaned nearly \$459 million on 406 million bushels of 1942 wheat, by April 30—45 percent of it stored on farms and 55 percent in warehouses. Loans have averaged \$1.13 per bushel, including some transportation to warehouses. More than 106 million bushels of this wheat had been redeemed by April 30, and nearly 4.9 million had been delivered to CCC.

Sale of the additional 100 million bushels of Government-owned wheat for feed that was authorized by law, began in late March. Prices at which the wheat was offered by CCC range from minimums of 93 cents in Southern Minnesota and 94 cents in Iowa, up to \$1.09 delivered in New England, Florida and Southern California.

Wheat stocks on April 1 totaled 901 million bushels, consisting of 328 million on farms, 175 million in interior mills and elevators, 212 million in commercial centers, 123 million in



merchant mills, and 63 million bushels of CCC wheat in steel and wood binds and in transit. Of the total of 901 million bushels, 578 million either were owned by CCC or were under loan on April 1.

### FATS, OILS: Price Supports

On April 8 the War Food Administration announced these changes in support prices: **SOYBEANS**—To \$1.80 per bushel for yellow soybeans having 14 percent moisture content, from the \$1.70 a bushel previously announced; **FLAXSEED**—To \$2.85 a bushel for U. S. No. 1, basis Minneapolis, from \$2.70 per bushel; **PEANUTS**—To an average of \$140 a ton for Virginia and Spanish type peanuts and \$130 per ton for runner type, from \$132 for Virginia and Spanish type and \$122 for runner type.

Premiums and discounts for other grades of soybeans and other grades and locations in the case of flaxseed will be the same as previously announced. Farmers storing soybeans

or flaxseed on the farm under a CCC loan will receive a storage payment of 7 cents a bushel. Prices to farmers for peanuts of any particular type or

### Index Numbers of Prices Received and Paid by Farmers

[1910-14=100]

Year and month	Prices received	Prices paid, interest, and taxes	Buying power of farm products <sup>1</sup>
<b>1942</b>			
January.....	149	146	102
February.....	145	147	99
March.....	146	150	97
April.....	150	151	99
May.....	152	152	100
June.....	151	152	99
July.....	154	152	101
August.....	163	152	107
September.....	163	153	107
October.....	169	154	110
November.....	169	155	109
December.....	178	156	114
<b>1943</b>			
January.....	182	158	115
February.....	178	160	111
March.....	182	161	113
April.....	185	162	114

<sup>1</sup> Ratio of prices received to prices paid, interest, and taxes.

### Prices of Farm Products

[Estimates of average prices received by farmers at local farm markets based on reports to the Bureau of Agricultural Economics. Average of reports covering the United States weighted according to relative importance of district and State]

	5-year average		April 1942	March 1943	April 1943	Parity price, April 1943
	August 1909-July 1914	January 1935-December 1939				
Wheat (bushel).....cents	58.4	83.3	99.7	122.7	122.3	143.2
Corn (bushel).....do	64.2	65.6	79.7	94.8	100.2	104.0
Oats (bushel).....do	39.9	32.5	51.8	58.4	61.1	64.6
Rice (bushel).....do	81.3	72.7	179.3	180.2	182.5	131.7
Cotton (pound).....do	12.4	10.04	19.03	19.91	20.13	20.9
Potatoes (bushel).....do	69.7	75.3	116.2	145.1	166.8	117.2
Hay (ton).....dollars	11.87	8.33	11.13	12.28	12.61	19.23
Soybeans (bushel).....do		.92	1.76	1.65	1.67	1.56
Peanuts (pound).....cents	4.80	3.48	6.25	6.83	6.98	7.78
Peanuts for oil (pound).....do			4.10	3.82		3.81
Apples (bushel).....dollars	.96	.89	1.41	1.85	2.15	1.56
Hogs (hundredweight).....do	7.27	8.38	13.48	14.67	14.35	11.78
Beef cattle (hundredweight).....do	5.42	6.56	10.59	12.80	13.03	8.78
Veal calves (hundredweight).....do	6.75	7.80	12.15	14.45	14.25	10.94
Lambs (hundredweight).....do	5.88	7.79	10.85	13.98	13.88	9.53
Butterfat (pound).....cents	26.3	29.1	37.0	50.5	51.3	42.2
Milk, wholesale (100 pound).....dollars	1.60	18.1	24.1	3.05	3.02	2.43
Chickens (pound).....cents	11.4	14.9	18.4	23.5	24.6	18.5
Eggs (dozen).....do	21.5	21.7	25.6	34.0	33.7	28.5
Wool (pound).....do	18.3	23.8	39.7	40.3	41.2	29.6
Tobacco:						
Fire-cured, types 21-24 (pound).....do	13.6	10.1	11.2	16.1	14.2	14.0

<sup>1</sup> Revised.

<sup>2</sup> Adjusted for seasonality.

<sup>3</sup> Preliminary.

<sup>4</sup> Base price crop years 1919-28.

grade will be the same in all areas. There will be no marketing cards and no "quota" or "excess" peanuts under the one-price system this year.

On April 9, the Department of Agriculture authorized a distribution payment of \$10 a ton to farmers who delivered "excess" or oil peanuts to designated grower agencies under the 1942 peanut program. Outstanding indebtedness to the Government for 1942 seed will be subtracted from this payment. The distribution payment represents a conservative estimate of surplus above cost of operating the 1942 program up to March 22. An additional payment may be available when the 1942 Peanut Marketing Program is completed.

Millings of farmers' stock peanuts during the 1942-43 season, up to March 31, totaled 1,207 million pounds—55 percent more than the 778 million pounds milled to the same date last season. Mills and warehouses held 603 million pounds of farmers' stock peanuts on March 31, compared with 368 million pounds on the same date last year.

### RICE: Acreage

Rice growers on March 1 intended to plant the same total acreage as last year. With 1938-42 average yields this acreage would yield a crop of about 73 million bushels—7 million above the record crop of last year, when yields were cut by storms. A crop this large, with the small carry-over, would provide for prospective exports and shipments, average domestic consumption and a moderate reserve at the end of the marketing season.

### COTTON: Consumption

Mill consumption of cotton from August through April totaled 8½ million bales, compared to consumption of 8¼ million bales in the same period a year earlier. Consumption of American-Egyptian cotton from August through April totaled slightly less than 38,000 bales—13 percent more

than in the same period last year. Stocks in consuming establishments, in public storage and at compresses on April 30 totaled 13 million bales—less than 1 percent under that of a year earlier. Included in the above were 45,763 bales of American-Egyptian cotton on April 30 this year, compared with 33,747 bales a year earlier.

Commodity Credit Corporation loans had been completed by May 1 on 3,019,000 bales of 1942 crop cotton and repayments had been made on 353,000 bales of this cotton. Loans on the 1941 crop through May 2, 1942, covered 2,213,000 bales.

Cotton was selling virtually at parity on April 15.

Organized cotton improvement groups may apply for free classification and market news service for the 1943 crop, at any time until August. Applications must be filed with offices of the Food Distribution Administration at Atlanta, Dallas, El Paso, or San Francisco.

Indemnity payments to manufacturers of bale wrappers made of cotton were increased from 35 cents to 40 cents on each wrapper manufactured and sold after April 1. Purpose is to assure manufacture of enough wrappers for the 1943 crop. Patterns must be manufactured or sold before July 1, to qualify for indemnity payments.

A program to stabilize the price of cotton was announced April 24, jointly by the Office of Price Administration and the War Food Administration. It provides for sales of Commodity Credit Corporation stocks at a price of 21.38 for Middling 1½ inch, which was the 10-market average price the day before issuance of the President's hold-the-line order. CCC may call its loans on cotton if the particular varieties so held are needed to meet current requirements. The announcement also said immediate steps would be taken to prepare a permanent price regulation for raw cotton to supplement when necessary the ceilings established by sales of CCC cotton and, if necessary, a temporary price ceiling

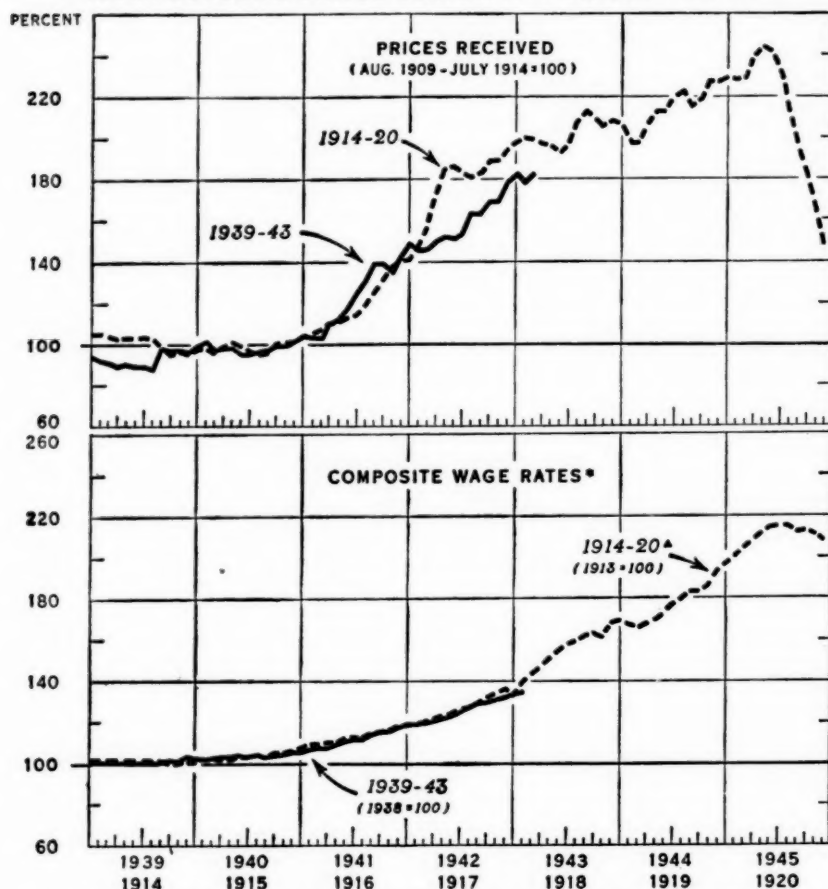
would be issued before completion of the permanent regulation.

Revised estimates for 1942 indicate there were 23,302,000 acres in cultivation July 1; 22,602,000 acres were harvested; production was 12,824,000 bales of 500 pounds gross weight; and

lint yield was 272.5 pounds per acre, exceeding the previous record yield of 269.9 pounds in 1937. Production of cottonseed in 1942 is now estimated at 5,720,000 tons.

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# PRICES RECEIVED BY FARMERS AND COMPOSITE WAGE RATES, INDEX NUMBERS, UNITED STATES, 1914-20, AND 1939-43



\* BASED ON DATA FROM FEDERAL RESERVE BANK OF NEW YORK. HOURLY EARNINGS OF INDUSTRIAL LABOR, WAGES OF FARM LABOR AND BUILDING TRADES, AND SALARIES OF TEACHERS AND CLERICAL EMPLOYEES  
▲ ADJUSTED FOR SEASONAL VARIATION

U. S. DEPARTMENT OF AGRICULTURE

NEG. 42587 BUREAU OF AGRICULTURAL ECONOMICS



## ACTION ON FEED GRAIN FRONT

**N**EEDED for increased planting of feed grain crops and for conservation of the Nation's feed supplies was stressed in an announcement April 22 by Chester C. Davis, Food Administrator, on the basis of an analysis of the livestock and feed situation prepared by the Bureau of Agricultural Economics. This analysis disclosed that feed grain supplies for 1943-44 will be smaller than those in the current season, unless extremely favorable yields are realized this summer and fall, while an even greater number of livestock will be on hand than the record number now being fed.

"It seems to me that we need to begin now to plan for increased wheat plantings next fall, and for some further shifts from oats to corn, wheat and barley next year," Food Administrator Davis said. "In the spring wheat areas and in areas where oats are already seeded with a poor stand, something can be done along these lines this year. However, any changes in plans this year should not be at expense of the oilseed crops for which need is even greater than for the feed crops.

"It also seems to me to be equally desirable to begin now a vigorous program of feed conservation—a program to make the most efficient use of every bushel of grain, every pound of hay, and every acre of pasture. In recent years with feed supplies large, many farmers have used more feed than necessary. With the need so great for increased livestock production, all feed should be saved and fed in the most economical manner possible."

Mr. Davis also announced that importation of wheat is already being arranged to supplement feed supplies in the Northeastern part of the country. Further importations, he said, may be arranged to help take care of feeding requirements in the Southeastern and Southwestern coastal areas. In addition to relieving the

pressure on domestic grain supplies, the importations will help to relieve the strain on the domestic transportation system. In time, he said, it will be necessary to bring the feed and livestock situation into balance, which may require additional steps not now foreseen. He emphasized, however, that there will be no shortage of grain this season, that no further changes in the ceiling prices of corn will be made this season, and that farmers who hold surplus supplies of corn can help to relieve the supply situation in the feeding areas by moving supplies to market in the normal manner.

**L**IVESTOCK production is at an all-time high, both in number of animals and in output of products. In total, the number of grain-consuming animal units in calendar year 1943 is estimated at about 10 to 12 percent larger than in 1942.

On January 1, about 26,946,000 milk cows and heifers two years old and older were being kept for milk, compared with 26,398,000 head on the preceding January 1, and the previous (January 1, 1934), record of 26,931,000. Total number of all cattle on January 1 was 78,170,000 head, 3 million more than on January 1, 1942, and about 3½ million above the 1934 record. Sheep and lambs numbered 55,089,000 head, slightly less than the year before, but larger than 1932's earlier record. Chickens totaled 540,107,000, or about 14 percent more than on January 1, 1938, the previous record. There were 73,660,000 hogs on hand, or more than 13 million more than on January 1 last year. According to present indications, the 1943 pig crop will number 125 million head, compared with last year's record of 105,000,000. At the same time, hog weights are running about 10 percent above normal, while egg production per hen is about 12 percent and milk production per cow is about 8 percent above the

1932-41 average. The conclusion, then, is that the Nation's feed grain requirements in 1943-44 will be much above those of any year to date.

On the feed production side, supplies available in the fall of 1943 seem likely to be smaller than in 1942. If farmers carry out their March 1 intentions and obtain average yields, production of feed grains in 1943 will be about 10 percent less than in 1942. And even if yields this year were to be as high as the very favorable ones of last year, feed grain production in 1943 probably would be but little larger than in 1942. Also, the total supply of oil meal and cake, and other protein supplements and by-product feeds, during the feeding year ahead probably will be little larger than in the present feeding year.

**C**ARRYOVER of corn and other feed grains from 1942 crops into the feeding year that starts this fall probably will be about the same as that carried into the current feeding year. Stocks of old-crop corn on next October 1, beginning the 1943-44 season, may well be smaller than on last October 1, while stocks of old-crop oats and barley this summer will apparently be somewhat greater than last summer. That is, the equivalent of the very large corn crop harvested last fall, and oats, barley and grain sorghums harvested last summer, as well as 275 to 300 million bushels of wheat, will be used up by the end of this feeding year.

Although total supplies of oil meal and cake, as well as other protein supplements and by-product feeds, were generally at a record level in 1942-43, the demand for these has been in excess of supply. The current prospect is that the over-all supply of protein feeds and supplements during 1943-44 will not be greatly different from that available in 1942-43. Plainly, these feeds must be used as efficiently as possible and every effort must be made to distribute feed equitably.

The Food Administrator's call for

increased planting of grain crops, and for vigorous feed conservation, coupled with announcement of the projected importations of wheat, were based upon a recognition of the feed supply situation which may face livestock producers in 1943-44 and 1944-45, if this year's yields turn out to be no better than average.

Of course, favorable yields this year would help out, but the feed situation throughout the 1943-44 feeding year will be very tight, in case of any extended or continuing drought in the coming growing season. Especially would this be true if drought were to hit the 1943 corn crop in the Midwest. Looking further ahead, it appears that livestock production, particularly the production of hogs and poultry, would have to be leveled off in the coming year if there were no increase in feed production from the levels in prospect during the early spring, unless substantial additional supplies are drawn from such sources as Canada and Australia, or farmers find it possible to use more efficiently all available supplies of feed.

**W**ITH the number of both cattle and sheep at a relatively high level, ranges and pastures generally are adequately stocked. This situation, together with our current need for as much meat as possible, indicates that individual ranchmen should be careful not to increase their livestock numbers beyond the range and feed resources that will be available if weather is about average during this year and next.

Although somewhat smaller than in World War I, the number of cattle in the 11 Western States on January 1 was 12 percent over the average for the period 1932-41 and 4 percent more than on hand January 1, 1934. The number of stock sheep in these same States, however, was 8 percent below the average of 1932-41, and 15 percent below the number on January 1, 1934. Cattle numbers in Oklahoma and Texas were 9 percent larger on

January 1 than the average number on hand during 1932-41 and only 5 percent under the number on hand January 1, 1934. Stock sheep were 31 percent more numerous than on January 1, 1934. Cattle numbers in 7 Great Plains States—Montana, Wyoming, Colorado, Kansas, Nebraska, North Dakota, and South Dakota—were 17 percent above the average for 1932-41, and were only

6 percent under the high number on hand January 1, 1934. Ranges generally have been good during the last few years, especially in the Great Plains region. Although current prospects are relatively favorable, grass has been slow in starting this season and there are still some dry areas in the Southwest.

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*Bureau of Agricultural Economics.*

## FARM EMPLOYMENT IN 1943

**M**AINTENANCE of farm employment levels and increased production per worker, despite large out-movement number of farm workers and use of many less efficient workers, have been the most outstanding features of the wartime farm labor situation. These seemingly contradictory trends are explainable in terms of replacements of losses primarily of younger men by women, youths, and older men, and the fuller employment and more efficient utilization of available workers.

During the past three years, it is estimated that civilian migration and entries into the armed forces removed 2.5 million actual or potential farm workers from the farm population. In addition there was a net increase in the number of farm residents employed in nonagricultural occupations of approximately 1.7 million persons. The total on-farm labor supply of actual or potential farm workers thus sustained a loss of 4.2 million persons between April 1940 and April 1943.

The fact that total farm employment during 1942 and the first quarter of 1943 remained at approximately the 1940-41 levels shows that the loss of workers from farms during the past few years has been substantially replaced, at least in numbers. Replacements have consisted very largely of farm family members who previously were not doing farm work or who were doing an amount so small as not to be reflected in estimates of farm employment made by the Bureau of Agricul-

tural Economics. Total farm employment in the United States averaged 10,397,000 persons during 1942, as compared with 10,361,000 in 1941, with numbers of both family and hired workers being maintained at their 1941 levels.

For the first quarter of this year, farm employment has remained at a level not appreciably different from that of corresponding months of 1942. On April 1 total farm employment of 9,308,000 persons was approximately 2 percent under the April 1, 1942 estimate of 9,483,000. Unfavorable weather during March delayed spring work in most sections of the country and may have been the major factor accounting for the somewhat less than usual increase in farm employment from March 1 to April 1. The number of hired farm workers has been smaller during each of the first 3 months of this year than in the corresponding months of last year. Although the monthly totals averaged 6 percent under the 1942 level, they averaged only 3 percent under the 1941 level. On April 1, 1943, there were 1,875,000 hired workers on farms, compared with 2,010,000 on April 1, 1942, and 1,991,000 on April 1, 1941. Ever since September 1942, the number of hired farm workers has been falling slightly below the corresponding monthly levels of a year earlier. The decline has been offset partially by expansion in the number of family workers, principally women and children.

**I**N each major geographic division of the country, employment of family workers during the first quarter of this year was maintained at substantially the same level as that of a year earlier. In all divisions except the Pacific States, however, there was some reduction in the number of hired farm workers. The number of hired farm workers in the Pacific States remained unchanged. On April 1, total farm employment was under that of April 1, 1942, in all geographic divisions, except the Pacific States. These decreases ranged from less than 1 percent in the West South Central States to approximately 3 or 4 percent in most of the other divisions.

The rapid changes and abnormal conditions of wartime invite comparison of present conditions with those of some pre-war period. The 5 years 1935-39 are frequently used as a pre-war standard for measuring agricultural production. This period, however, is less satisfactory in appraising farm employment changes since its average employment of 10,920,000 persons was undoubtedly affected by the high level of unemployment then prevailing in the Nation. Available estimates indicate that during 1935-39 there were on the average 8 to 10 million unemployed workers, whereas there are now only 1 million.

During 1935-39, outward migration of persons who were underemployed on farms was retarded substantially by lack of employment opportunities in towns and cities. Because the number of underemployed farm workers was quite large, this period does not provide a good yardstick for comparing effective employment then with that of the present when more adequate utilization is being made of available workers. Comparison of current farm employment with that of a more distant period than 1935-39 might also lead to fallacious conclusions, because of the downward trend in agricultural employment since 1909. This downward trend is associated, of course, with changes in production conditions

following the mechanization of agricultural operations, transfer of certain operations from farm to nonfarm establishments, changes in export trade conditions, and with other factors influencing labor needs on farms.

**D**URING 1942 an agricultural production volume 27 percent larger than the 1935-39 average was achieved by a working force 5 percent smaller than in 1935-39. Average output per worker in 1942 was 34 percent above that in the 1935-39 period. A part of this greater production per worker was due to the better than average yields caused by unusually favorable weather conditions. Part of the increase in productivity, however, was due to improvement in the effectiveness of the average worker. The improved efficiency of labor resulted from an increase in number of days worked per worker, wide use of mechanical equipment, and improved management practices. Crop production per worker in 1942 was larger than in any previous year. Also, output of livestock and livestock products per worker, which is less affected by weather conditions, was 36 percent above the 1935-39 average. It is estimated that the average worker in 1942 handled an acreage and livestock enterprise 7 percent larger than handled in 1935-39.

Thus there were two opposing forces at work in agriculture last year with respect to the over-all effectiveness of the working force. On the one hand, considerable alteration was occurring in composition of the working force, through substitution of women, children, part-time workers, new and inexperienced workers, and older persons for the younger able-bodied, experienced male farm workers whose places they took. On the other hand, farm operators and experienced workers who remained on the farms found it necessary to work harder, more efficiently, more days and hours a week, and more weeks per year than before, which more than offset the effects of the

altered composition of the working force. Evidence of the harder efforts put forth by farmers in 1942 is shown in data as to number of hours worked per week by agricultural workers. In July 1942, for example, farmers worked 17 percent more hours per week than in July 1941. During the 5 busiest months of the year, June through October, the average work-week of agricultural workers was 9 percent longer than in 1941.<sup>1</sup>

**T**HAT farm employment thus far in 1943 is only slightly under the 1942 level, whereas the reduction in farm labor supply occasioned by military and civilian migration during the last 12 months has set a new record, suggests that replacements are still being made from the farm family members who hitherto have not been in the labor force. Although there are scattered reports of a so-called "back-to-the-farm" movement resulting from draft deferment of farm workers and the possible change in draft status of persons over 38 years old who are not in essential occupations, information as to the extent of the shifts from nonfarm to farm occupations is not yet at hand. The changes in farm employment from March 1 to April 1 suggest that "back-to-the-farm" movement of former farm workers has not yet been sufficient to affect current farm employment levels significantly.

Important new factors are in operation this year, however, which will considerably reduce the volume of migration from farms. Deferment of essential agricultural workers from military service will reduce the number of workers to be drafted for the armed forces. The decelerated rate of expansion of employment in essential industries, the contraction of employment in less essential nonfarm occupations, and the restrictions placed on shifts of farm workers to nonfarm jobs are reducing the volume of migration from farms to towns and

cities this year. Furthermore, the number of farm persons in the age groups in which migration is most common already has been materially reduced by the heavy outmigration of the past two years. The expected smaller net migration from farms during 1943 may reflect both a reduction of migration from farms and maintenance of a relatively high level of migration to farms. There is likelihood, however, of further migration from farms of women and girls of working age, men and boys outside of military age, and farm residents already employed in nonfarm work. In view of this fact no reversal in the direction of net migration can be expected during 1943.<sup>2</sup>

Net migration from farms is, of course, the net balance of a two-way movement. For example, more than 800,000 persons moved onto farms from nonfarm areas during 1942, but 2,400,000 persons left farms, resulting in a net balance of outmigration from farms of approximately 1.6 million. Migration to and from farms, moreover, manifests a seasonal pattern partly related to the seasonal changes in farm employment. Thus most of a year's moves into farm areas will be concentrated in the first two quarters of the year when farm employment is increasing seasonally.

**A**LTHOUGH present prospects are that crop acreages and livestock numbers will be greater this year than last year, the volume of production may increase only slightly, assuming average yields in contrast with the exceptionally high yields of last year. Total manhours of labor required during 1943 may thus increase by a somewhat greater percentage than the expected increase in production. The additional man-hours of labor needed could be provided by further improvements in the utilization and distribution of workers and machines, so that

<sup>1</sup> Bureau of the Census, Current Surveys Division. *The Labor Force Bulletin*, March 1, 1943.

<sup>2</sup> Such a reversal has occurred only in the one year 1932 out of the 23 years during which migration estimates have been made annually.



an employment level approximating that of last year might be sufficient for the production task.

Although the farm working force may include a larger number of women and inexperienced workers in 1943 than in 1942, the effect of the reduction in skilled force may be offset by improved distribution of labor and farm machinery and by reduction of underemployment of operators and family labor on farming units with operations which have been too small to provide full-time employment. If shifts from nonfarm to farm work by experienced male farm workers assume significant proportions, the effective

work capacity of the 1943 farm working force will be improved.

These shifts to farm work, however, would not necessarily involve a commensurate increase in the number of farm workers. Entry of new farmers into agriculture, or return of experienced farmers might involve only a change in operators of particular farms, without bringing any increase in the number of farms or of farm workers. In other cases, return of experienced farm workers might result in the release of other family members, particularly children and housewives, from farm work.

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## LABORATORIES AT WAR

UNTIL results have been achieved and tested, scientists do not like to talk about their work for publication. The main reason is understandable—there may not be any result worth talking about, or it may be quite different from what is anticipated; so why make promises until you know what you can deliver?

The following examples of the work carried on by the scientific agencies in the Agricultural Research Administration, therefore, are all taken from projects that have recently given results worth talking about. They will convey a better idea of the range of the research work than could be given by a lengthy discussion. Even so, they are merely representative, and selected more or less at random.

**Remedy for Internal Parasites.** It was discovered that phenothiazine, a synthetic organic chemical, is the most useful remedy for treating domestic animals for the removal of internal parasites. In a 1-ounce dose, it rids sheep and goats of stomach worms, nodular worms, hookworms, and related pests known to produce unthriftiness, emaciation, marked weakness, and death. In larger doses it is equally effective in removing similar parasites from calves and young cattle.

Phenothiazine in 1½-ounce doses is practically a specific for the removal from horses and mules of blood worms and related parasites that are responsible for intermittent colic, marked disturbances in circulation, and impairment of working efficiency. In very small doses this drug is also effective in removing cecal worms from poultry—parasites that transmit blackhead to chickens and turkeys. It was reported that one of the three companies now manufacturing phenothiazine, sold in 1942 one and one-half million pounds of it for use as a livestock remedy.

**WILT-Resistant Tomato:** Pan America, a new tomato variety far more resistant to fungus wilt disease than any variety hitherto available, was developed. This variety comes from a cross between Marglobe and a wilt-resistant wild tomato from Peru. Much of the tomato crop land of the United States is so infested with the wilt fungus as to prevent profitable tomato production. Introduction of the Pan America offers a practical and economical solution of this problem.

**Better Poultry Rations:** Through poultry nutrition research, data were developed as to satisfactory substi-

tutes for the usual poultry feeds. These facts have made possible widespread readjustments in the poultry feed situation without lowering production of meat and eggs. Without such information it would not be possible to attain the war goal set for poultry and egg production.

**More Eggs per Hen:** Through administration of the National Poultry Improvement Plan in cooperation with 44 States, a material reduction in poultry mortality from pullorum disease was effected. This plan assisted in raising average annual egg production per bird in the United States from 89 in 1934 to 113 in 1942.

**Better Cheddar Cheese:** A method of making Cheddar cheese of the best quality, consistently and regularly, by using milk of good quality and pasteurizing it to make control of the acid development easy, was worked out. This method, demonstrated in nine important dairy States, has proved invaluable to manufacturers in producing U. S. No. 1 Cheddar cheese for shipment overseas. In one State alone, demonstrations by one field man resulted in an increase of more than 2 million pounds of No. 1 cheese, worth from 1 to 4 cents a pound more than No. 2 cheese.

**DRIED Whole Milk:** Producers of dried whole milk for overseas shipment were assisted in clarifying factors involved in the production, packaging, handling, and storing of the product, to make the milk keep for long periods in an edible state. The shift to dried whole milk in many areas has resulted in greater returns to the dairy farmer than he would otherwise have obtained from the sale of butterfat alone.

**Artificial Insemination:** Artificial-breeding associations have been actively sponsored and developed. More than 200,000 cows are now enrolled in these associations. By means of artificial insemination each bull contributes his superior breeding qualities to 15 to 20 times as many cows as he could otherwise serve. One bull in

New York State by this means bred 500 cows last year.

**Protecting Stored Grain:** Improved methods of protecting millions of bushels of grain in storage from the depredations of insects have been devised, in the face of limited supplies of fumigation materials. Investigations showed that by the addition of 10 percent methyl bromide to the standard ethylene dichloride-carbon tetrachloride mixture the dosage could be cut from 6 gallons per 1,000 bushels of grain to 2 gallons.

**Hemp Machinery:** Harvesting and processing machinery has been developed to make available a domestic source of hemp. Based upon this work, a hemp program for the planting in 1943 of upwards of 185,000 acres and the building of necessary plants for the production of hemp fiber from this domestic crop is under way.

**RANGE Improvement:** Methods were devised for increasing the carrying capacity of native pastures and ranges in the southern Great Plains, by the control of sagebrush. Experiments show that control by mowing is feasible, and at what season of the year and how frequently it should be done. Mowing in two successive Junes eradicated nearly all of the sagebrush plants, left the few survivors with only a trace of vigor, and more than doubled the stand of grass. Grazing experiments are demonstrating that beef production is materially higher on the mowed pastures.

**Better Oats:** Five varieties of oats—Marion, Hancock, Boone, Tama, and Vicland—were developed in cooperation with the Iowa and Wisconsin Agricultural Experiment Stations. These varieties are highly productive and resistant to both stem and crown rusts and also to loose and covered smuts. Their record was outstanding in comparison with other standard rust-susceptible varieties in 1942. As a result, farmers plan to use them almost exclusively. It is estimated that they will occupy 95 per-

cent of the Iowa oat acreage in 1943, and only slightly less in surrounding States.

**Designs for Women's Work Clothes:** In women's work clothes, 24 new designs needed to insure efficiency, comfort, and health on war jobs, both on the farm and in industry, have been originated. Research on these designs, begun 18 months before Pearl Harbor, made possible their release to pattern companies and ready-to-wear manufacturers early in the war. Within a few months, 100 companies were putting on the retail market garments following or adapting these designs.

**Screw Worm Remedy:** A new remedy for screw worm—smear No. 62—has been developed, which is reducing the annual loss of meat, wool, and mohair occasioned by the attacks of screw worms on livestock.

**SWINE Erysipelas:** The use of live culture vaccine and anti-serum for the control of the swine erysipelas was worked out. Results have been so favorable that in 1942 cultures were released to licensed biological houses for use in a vaccination program under Department and State supervision in the five States, Nebraska, Iowa, South Dakota, Missouri, and Illinois. More than 2,000,000 hogs have been vaccinated and the results in general have been very encouraging.

**Better Antigen for Pullorum:** A new antigen, known as T. G. Antigen, for the detection and elimination of pullorum infected chickens or "carriers" of this widespread and often fatal disease was developed. This antigen practically eliminates the non-specific reactions and is as dependable as the antigen formerly used in detecting infected birds. Its use, therefore, conserves poultry without increasing risk of infection. During the past year sufficient T. G. antigen was produced to test 30,000,000 birds and sufficient of the older type to test 20,000,000 birds. The large-scale testing carried out with these products has been the most important factor in protecting

the poultryman against loss by pullorum disease.

**Vitamin A from Vegetables:** Studies made with human subjects demonstrated that normal dark adaptation of the eyes can be maintained by means of the vitamin A value provided in foods of plant origin, such as carrots, spinach, peas, and dried alfalfa, as effectively as by means of the vitamin A furnished by foods of animal origin, such as egg yolk, liver and liver oils.

**Phosphorus for Range Cows:** It was found that the feeding of phosphorus supplements to range cows in phosphorus-deficient areas of the Gulf Coast States adds as much as 30 percent to the calf crop and 100 pounds to the weight of the calf as a yearling. This method is being used widely in mineral-deficient areas to increase beef production.

**Better Honey Bees:** By selection and breeding, high-producing strains of bees were developed that have produced 50 percent more honey than common stock.

**Vegetable Dehydration:** The basic design of dehydrating equipment was improved and new processing and packaging technics were making possible the production of dehydrated vegetables and fruits of improved nutritive value and color retention, palatability, and ease of rehydration. These improved dehydrated products make essential foods available to our armed forces and to lend-lease while effecting a saving in shipping space amounting to sixty to eighty percent.

**MEAT Dehydration:** Methods for the successful dehydration of meats for lend-lease and military use were developed. As a result of this work, dehydrated meat is now being produced in large quantities.

**Rubber Substitute from Vegetables:** Norepol was developed, a rubber substitute which satisfactorily replaces natural rubber in many essential mechanical uses. This product, made from soybean or corn oil, is in commercial production under various trade names.

**Body Louse Control:** Fumigation schedules and necessary bags and vaults were developed, whereby soldiers' clothing and equipment can be rapidly and effectively freed from body lice.

**New Method of Dispersing Insecticides:** A new method of dispersing insecticides as aerosols was discovered and a material found that increases the deadliness of pyrethrum, making one pound of material take the place of two gallons of fly spray. This development is conserving pyrethrum for agricultural uses, and proving advantageous in protecting armed forces from malarial mosquitoes. Also, it is safeguarding this country against introduction of dangerous insects.

**Belladonna Supplies:** A cooperative program was carried out for production

of belladonna in 1942, which has provided an adequate supply of this essential drug for all purposes. The quality of the domestic crop produced in accordance with methods developed by research was much superior to that of the imported product, averaging twice the alkaloid content of U. S. P. standards.

**Citrus Base Marmalade:** A chemical process for preserving citrus fruit concentrate (oranges and grapefruit) in barrels was discovered. Millions of pounds have been processed by this method for shipment under lend-lease. This development served to release metal containers for other foods.

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## FARM MACHINES AND FARM POWER

WITH 1943 production of all kinds of farm machines restricted greatly, the farm labor force the smallest in years, and production goals the highest on record, farmers are placing increased reliance upon their machines, especially the important labor-savers. The farm power situation in World War II is greatly different from that in World War I, when tractors were few and the automobile and motor truck industries were in their infancy. During World War I, production of all kinds of power machines increased and the numbers on farms increased in each of the war years. Even so, tractors in 1920, furnished only about 5 percent of the drawbar power used for operating farm machines (table 1).

At the beginning of World War II, numbers of tractors were at peak levels, whereas numbers of work animals were only about 55 percent of the 1920 numbers. Also, as the average age of horses and mules now on farms is much higher than in 1920, it is altogether likely that the amount of work accomplished per work animal is now somewhat less than in the

period of World War I. Because tractor production in 1943 has been reduced greatly from normal, tractor numbers at the beginning of next year probably will show little change from present numbers. Numbers of work animals are certain to show a further decrease, a tendency expected to continue for some years in view of the small colt crops of 1942 and 1941.

Indications are that Nation's total area in crops in 1944 may well be the highest in about a decade. If this proves to be the case, total drawbar power on farms next year may well be less than in any recent year.

In World War I, when they were faced with a wartime labor shortage, farmers increased their drawbar power and expanded their production. Drawbar power on farms increased about 20 percent from 1910 to 1920, while the area in harvested crops increased only about 10 percent. Thus there was about 10 percent more drawbar power per acre of harvested crop land in 1920 than in 1910.

AS part of the pattern of change in farm power, numbers of tractor-

drawn and mounted machines are at peak levels. Also, most of the tractor machines now on farms are relatively new, as they either represent recent developments or were brought into extensive use only with the widespread adoption of rubber tires by tractors and other farm machines. Most numerous of the tractor machines are moldboard plows, row-crop cultivators, grain drills and grain binders (table 2). However, there are large numbers of important labor-saving machines, such as combines and corn pickers. Use of combines has spread to all parts of the country, largely as result of the use of rubber tires and the introduction of small combines. Use of corn pickers is still limited largely to the Corn Belt, the Lake States and the Great Plains, where large acreages of corn are grown and harvested from the standing stalk. Most tractor machines are relatively new and their average age is much less than that of similar horse-drawn machines. The average age of machines first used by tractor power, of course, is much higher than the average age of tractor machines recently adopted. Thus, tractor plows and disk harrows, grain binders and grain drills, are older on an average than are machines such as corn pickers, combines, tractor mowers, tractor row-crop planters, and tractor cultivators.

To strike a balance as regards the farm machinery situation, it is im-

portant to consider the horse-drawn machines. At present, about 1,900,000 tractors are owned by some 1,700,000 farmers. Probably some 1,000,000 farmers, mostly croppers or other farmers with small acreages, have little or no farm power or machinery. The cropper farmers use machinery and power from the operational unit of which their farms are parts, whereas small farmers depend upon hiring the additional machines and power they need. There are still about 3,000,000 farmers who depend largely upon animal power and animal-drawn machines for operating their farms. In addition, the use of many horse-drawn machines still continues on tractor farms. Especially is this true in the use of light-duty machines such as planters, hay rakes, grain drills, cultivators, and mowers, and for some heavy-duty machines, such as grain binders and manure spreaders.

Many kinds of horse-drawn machines are now so old that they would be discarded if new machines and adaptable power units for their operation were available. This applies especially to grain and row-crop binders, dump rakes and mowers. Many horse-drawn machines already have served three-fourths or more of their useful lives, by normal expectations. For some machines, important numbers more than 20 years of age are still in use.

TABLE 1.—Farm Power for Drawbar Work, United States, Specified Years

Year	Acre of cropland harvested	Tractors on farms Jan. 1	Horses and mules 2 years old and over on farms Jan. 1	Equivalent work animal units per 100 acres harvested cropland <sup>1</sup>
	Millions	Thousands	Thousands	Number
1910.....	329	0.1	19,429	5.9
1915.....	343	25	21,866	6.4
1920.....	360	246	22,386	6.6
1925.....	360	549	21,038	6.6
1930.....	370	920	17,981	6.1
1935.....	345	1,048	15,743	6.0
1940.....	344	1,545	13,005	6.0
1942.....	351	1,836	12,411	6.1
1943 <sup>2</sup> .....	355	1,900	12,270	6.1

<sup>1</sup> One tractor was considered as the equivalent of 5 work animals.

<sup>2</sup> Preliminary. Harvested acres based on anticipated 1943 plantings and normal abandonment.



There are important regional aspects as regards farm machinery. For many machines there are definite areas of concentration. Age of machine varies widely in different areas of the country. For tractor machines, age is above average in the areas where tractor power first came into extensive use. Thus, tractor machines are relatively old in the Great Plains. In the same areas, horse-drawn machines are above average age, as the decline in use of animal power in recent years has resulted in a decrease in purchases of many kinds of horse-drawn machines.

**A**NOTHER important factor affecting age of machinery in different parts of the country is the relative economic status of farmers. In areas where drought damage has been widespread or where prices of farm products have been relatively low, the farm-machinery situation is relatively unfavorable. In these

areas, the age of machines is usually above average, and purchases of new tractors and tractor equipment in recent years have been small. The replacement of farm machines in such areas in the years ahead should be relatively greater than in areas where farmers' buying power has been above average and where machines now on farms are of below-average age and relatively numerous in relation to the work to be done.

Machines of certain types tend to be extensively used in rather definite areas. The great bulk of one-way disk plows and riding listers are found in the Central Plains States and in Oklahoma and Texas. The one-way disk plows are used extensively for preparing land for the seeding of small grain, especially wheat, in the sub-humid winter wheat areas. Listers are used for the same purpose, but probably are used more extensively for preparing land for row crops,

TABLE 2.—Estimated Number and Age of Specified Farm Machines, United States

Kind of machines	Number of machines on farms		Average age of machine, Jan. 1, 1942	Number of machines on farm Jan. 1, 1942, of specified age group			
	Jan. 1, 1943	Jan. 1, 1942		10 years and less	11 to 20 years	21 to 30 years	31 years and over
	Thousands	Thousands	Years	Percent	Percent	Percent	Percent
Riding moldboard plows—tractor	1,520	1,461.2	7	74	23	3	.....
Riding moldboard plows—horse	1,001	1,041.0	17	25	45	24	6
Disk harrows—tractor	1,228	1,181.4	8	71	24	4	1
Disk harrows—horse drawn	1,294	1,332.8	16	32	42	21	5
Riding listers and busters—tractor	297	288.3	7	73	25	2	.....
Riding listers and busters—horse	218	232.6	15	31	44	21	4
Row crop planters—tractor	216	204.3	6	85	12	2	1
Row crop planters—horse or larger	1,684	1,705.8	18	35	38	22	5
Riding row crop cultivator—tractor	987	887.9	5	90	9	1	.....
Riding row crop cultivator—horse	2,298	2,337.0	16	32	43	22	3
Mowers—tractor	345	315.6	5	89	8	2	1
Mowers—horse	2,504	2,565.0	15	40	35	19	6
Sulky or dump rakes	2,148	2,165.8	17	30	40	22	8
Slide delivery rakes	720	713.8	11	51	34	13	2
Grain drills—tractor	422	422.3	9	68	26	5	1
Grain drills—horse	1,264	1,289.8	18	25	40	27	8
Grain binders—tractor	356	366.1	9	64	26	8	2
Grain binders—horse	986	1,018.6	19	21	40	29	10
Row crop binders—tractor	83	82.0	8	72	18	8	2
Row crop binders—horse	511	527.7	17	30	42	22	6
Combines—all sizes	296	264.3	5	80	19	1	.....
Corn pickers	140	129.9	6	82	17	1	.....
Grain threshers	160	167.8	16	29	45	21	5
Manure spreaders	1,158	1,158.1	12	50	35	14	1
Milking machines	310	253.1	8	67	26	7	.....
Cream separators	1,748	1,748.0	10	56	33	10	1

The above material was adapted from B. A. E. report F. M. 41, Age and Size of Principal Farm Machines. Data for other machines as well as detailed information showing numbers, sizes, ages of the various machines by State groups are included in the above report which is based largely on information obtained from more than 27,000 crop correspondents in February 1942.

especially cotton, grain sorghums and corn.

The great bulk of all kinds of one-horse equipment is found in the South Atlantic and South Central States, but the numbers of some kinds of such equipment, especially planters and cultivators, are still important in other regions. Most of the manure spreaders are in the Northern, Northeastern, and Pacific Coast States, where dairy production is of key importance. Milking machines are especially important in the North Atlantic and Lake States, and numbers of cream separators are concentrated in the Corn Belt, the Lake States and the Great Plains. On the other hand, mowers, hay rakes, row crop planters, disk harrows, and some other machines are rather widely distributed over the Nation. The types and kinds of machines used in different areas are determined largely by the size of the power unit and the amount of work to be performed.

Wide adoption of motor transportation, tractors, and complementary labor-saving machines has brought many changes in the general farm picture. With the power and machines now on farms, production per farm worker of products for sale and for use in the farm home is now more than 50 percent greater than in 1910 and more than one-third higher than in 1920. These increases, however, do not take into account the fact that, in the earlier period, more of the worker's time was devoted to producing feed for workstock than now. Even taking this into account, the increase in production per farm worker has been notable.

**I**N 1920, the feed and forage from more than 90 million acres of the country's cropland, or around 25 percent of the total, was needed for feeding of horses and mules on farms and in cities. Now, with numbers of horses and mules much smaller, only about half that amount of cropland is needed for feeding work animals.

Adoption of machine power contributed greatly to the agricultural surplus of the past 20 years, but the once "surplus acres"—free for alternative crops—are now vitally needed for producing food for war.

In some respects of, course, the increased farm mechanization since 1920 has created special problems related to the prosecution of World War II. For example, the use of tractors and relatively complicated farm machines has expanded the need for skills in agriculture which also are needed in industry. Furthermore, manufacture of farm machines requires metals and other materials that are basic war materials.

More steel and other scarce metals are used in tractors and tractor machines than were required for horse-drawn machines. Probably around 60,000 tons of crude rubber or its equivalent in reclaimed rubber is needed for maintaining the rubber tires and other rubber equipment on farm automobiles, trucks, tractors, and other machines. Motor fuel consumption on farms is now more than 200 percent greater than in 1920 and more than 30 times above the 1910 figure.

Thus, with the increased machine power on farms we have relatively less need for farm labor and farm materials in operating the farms than formerly, but there is much greater need of purchased materials and skilled non-farm labor for producing the machines, for servicing them and for supplying other materials needed in their operation.

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An amendment to the price ceiling regulation affecting butter encourages many wholesalers to resume sales to jobbers and chain store buyers instead of selling almost entirely to individual retail stores, bakers, hotels, and other final consumers. The amendment divides the wholesalers' margin into two allowances—one for primary distributors and another for jobbers.

# WARTIME CHANGES IN COW NUMBERS

**I**N view of the recent public concern over reported widespread sales of dairy herds in areas near war industries, an analysis made of shifts in size and number of dairy herds in 11 Connecticut towns presents timely and reassuring data. In brief, the analysis shows that, although some herds have been sold in these areas of Connecticut, there has been no alarming dispersal of herds, largely because the productive cows sold by farmers were sold to other farmers who kept the cows in production.

The towns chosen were selected to represent major type-of-farming areas, land classes, and milk markets in the State. All owners reporting one or more cows were included in the analysis. The survey dealt with changes in the number of cows recorded on tax assessment lists of the 11 towns, all of which are now centers of wartime industrial work.

Milk is Connecticut's major agricultural product, most of it being sold in Hartford, New Haven, Bridgeport, and the many smaller cities of the State.

TABLE 1.—Changes in Cow Numbers by Size of Herd in 11 Connecticut Towns, 1941-42

Cows per farm, 1941	Number of herds	Change in number of cows	
		Per herd	Total
Herds of 1 or 2 cows added: 0.....	59	+1.2	+69
Herds of 3-25 cows added: 0.....	9	+13.0	+117
Herds eliminated:			
1-2.....	57	-1.3	-73
3-9.....	14	-4.6	-64
10 or more.....	8	-17.6	-141
Herds increased:			
1-4.....	68	+1.8	+120
5-19.....	152	+3.5	+526
20 or more.....	104	+5.1	+526
Herds decreased:			
1-4.....	58	-1.2	-70
5-19.....	88	-2.5	-217
20 or more.....	67	-5.0	-334
Herds remaining unchanged:			
1-2.....	275	0	0
3 or more.....	130	0	0
All herds.....	1,089	+0.4	+459

TABLE 2.—Net Changes in Cow Numbers by Size of Herd in 11 Connecticut Towns 1941-42

Cows per farm, 1941	Total cows, 1941		Net increase in cows	
	Farms reporting	Number of cows	Number	Percent
0.....	68	0	186	—
1-2.....	415	562	-9	-1.6
3-4.....	79	280	-47	-18.1
5-9.....	104	730	28	+3.8
10-14.....	116	1,376	103	7.5
15-19.....	102	1,704	79	4.6
20-49.....	184	5,113	121	2.4
50 or more.....	21	1,618	-2	-0.1
Total.....	1,089	11,363	459	4.0

<sup>1</sup> Number of farms adding herds during year.

The high level of industrial employment has brought an increase in the demand for milk, at the same time it has heightened the competition for labor between industries and milk producers. More than half the cows in Connecticut are in herds of 20 or more, all of these requiring labor in addition to that of the operators. Only a small proportion of the cows is in herds of less than 5, but the number of herds of this size is large. Some herds are supplementary enterprises on poultry, tobacco, potato, and vegetable farms, and many herds are on part-time or rural residence farms.

Between October 1, 1941, and October 1, 1942, the two most recent assessment dates, some herds in these towns went out of existence and other herds replaced them, the net effect of the changes being small. On each of 59 farms, one or two cows kept mainly for family use were added during the 12-month period, but there was a decrease in the same category of cows on each of 57 other farms (table 1). Fourteen herds of 3 to 9 cows and 8 herds of 10 cows or more were eliminated, but at the same time 9 new herds appeared, with an average of 13 cows to the herd. Thus, there appears little ground for alarm about dispersal of cows in these areas.

**O**F 938 herds listed both in 1941 and in 1942, 323 were increased, 210 were decreased, and 405 remained unchanged. The excess of increases

over decreases in these herds accounted for a 4-percent increase in cow numbers for the entire group of farms (table 2). Farms with 10 to 14 cows made the largest net percentage increase of any group having cows in 1941. In percentage terms, the decrease in cows in 3 to 4 cow herds was large. For several years the importance of these very small herds has been declining as they were dispersed or increased to larger size.

Only 18 herds were reduced by as many as 10 cows during the year, and this reduction totaled only 316 cows. War causes seemed to be less important than nonwar causes in explaining these decreases. The reduction of 120 cows in 7 herds could be traced to such natural causes as death of the operator or moving to another town. In 4 herds there was a total decrease of 65 cows because of wartime conditions. The reasons for decreases in the other 7 herds are unknown.

The results of this study of tax lists agree closely with a farm labor survey which covered 20 percent of the commercial farms in Connecticut and indicated that in spite of a large reduction in the number of regular workers on farms, dairymen had been able to increase cow numbers 4 percent in the year ending in the fall of 1942.

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## COTTON SUPPLIES AND PRODUCTION

**L**AST year was the most profitable experienced by the American cotton farmer for some time. Although cotton acreage was the second smallest since 1896, production totaled 12,824,000 bales, 500 pounds gross weight, or nearly 3 percent above the 1932-41 average. Yields were uniformly good throughout the Cotton Belt, and the United States average yield was 272.5 pounds per acre. This was a new high, exceeding the previous record

established in 1937 by 1 percent. The weighted average farm prices to April 1 were 18.93 cents per pound for lint and \$45.64 per ton for seed, giving producers returns of 1.4 billion dollars from marketings, or 1.5 billion including Government payments. Returns were 17 percent higher than in 1941 and the highest since 1925.

Like other farmers, however, cotton farmers must look ahead rather than backward. It will be useful, there-

fore, to explore the outlook for cotton during the coming year. The domestic carry-over of American cotton last August was 10,505,000 bales. As 1942 production (ginnings plus city crop) is estimated at slightly under 12½ million running bales, the total 1942-43 domestic supply of American cotton is nearly 23 million bales, or about 300,000 bales larger than last season. Continuation of the present level of mill activity would result in a consumption of about 11.3 million bales in the 1942-43 season, of which nearly 200,000 bales would be of foreign growths. Total domestic disappearance of American cotton (consumption, exports, and destroyed) probably will be nearly ½ million bales under production in 1942, leaving an end-of-season carryover of American cotton of about 10.8 million bales.

Although the indicated carry-over next August will be equivalent to nearly 11 months disappearance, it is significant that the size of the carry-over varies considerably for different quantities of cotton. In the low grades and in the shorter lengths, particularly under 15/16 inch, the disproportionately large supply is estimated to be enough to last several years at current rates of disappearance. However, in the high grades and longer staples for which wartime demand is greatest the carry-over will represent only a few month's supply. Nevertheless, even for these, the supply will be enough to last until the 1943 crop becomes available.

**M**OST of the 1943 crop has already been planted, but the first acreage estimate will not be made until July 8. It will be a month later than that before any official estimate will be available on the size of the crop and well into the picking season before much will be known about the grade and staple of the crop. If for analytical purposes, it is assumed that the planted acreage in 1943 proves to be the same as in 1942 and that yields and abandonment are equal to the

1937-41 average, the resulting production would be about 11¼ million running bales. This would give a supply for 1943-44 of slightly above 22 million bales. Should 1943-44 disappearance be the same as that estimated for this season, the carry-over on August 1, 1944, would be slightly under 10 million bales, or almost 10 months supply. If the yield should be less than the 1937-41 average—say equal to the lowest during that 5-year period—the carry-over on August 1 next year would be nearly 9¼ million bales. If there were the same distribution of qualities in the 1943-44 supply as in 1942-43, however, a carry-over as low as 9¼ million bales could easily result in a scarcity of the higher grades and necessitate considerable shifting by domestic mills to lower grades in the medium staples. It is likely also that shortages in the longer staples would develop under these circumstances.

Farmers were urged to shift to longer staple varieties in 1943, in areas where practical, but the wartime need is for both longer staple and higher grade cotton than much of that normally grown. Quality differentials are such as to encourage careful picking and handling. For example, Middling 1-inch cotton qualifies under the 1943 loan for a premium of 25 points, or \$1.25 per bale of 500 pounds net weight based on Middling 1½/16 inch. The premium for Middling 1½/16 inch cotton is 120 points, or \$6.00 per bale. If through carelessness or for some other reason the grade of the 1½/16 inch cotton declines to Strict Low Middling, there is a discount of 45 points, or \$2.25 per bale instead of a premium of \$6.00. On the other hand, if careful handling raises the grade to Strict Middling, the premium is 170 points, or \$8.50 per bale. Such differences are obviously substantial enough to merit careful consideration.

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# Economic Trends Affecting Agriculture

Year and month	Industrial production (1935- 39= 100) <sup>1</sup>	Income of in- dustrial workers (1935- 39= 100) <sup>2</sup>	Cost of living (1935- 39= 100) <sup>3</sup>	1910-14=100					
				Wholesale prices of all com- modities <sup>4</sup>	Prices paid by farmers for commodities used in—			Prices paid, interest, and taxes	Farm wage rates
					Living	Produc- tion	Living and pro- duction		
1925.....	90	126	125	151	163	147	156	170	176
1926.....	96	131	126	146	162	146	155	168	179
1927.....	95	127	124	139	160	144	153	166	179
1928.....	99	126	123	141	160	148	155	168	179
1929.....	110	134	122	139	159	147	154	167	180
1930.....	91	110	119	126	150	141	146	160	167
1931.....	75	84	109	107	128	123	126	140	130
1932.....	58	58	98	95	108	109	108	122	96
1933.....	69	61	92	96	108	108	108	118	85
1934.....	75	76	96	109	122	123	122	128	95
1935.....	87	86	98	117	124	127	125	130	103
1936.....	103	100	99	118	123	125	124	128	111
1937.....	113	117	103	126	128	136	131	134	126
1938.....	89	91	101	115	122	125	123	127	125
1939.....	108	105	99	113	120	122	121	125	123
1940.....	123	119	100	115	121	124	122	126	126
1941.....	156	169	105	127	131	131	131	134	154
1942.....	181	238	116	144	154	149	152	152	201
1942—April.....	173	218	115	144	152	149	151	151	177
May.....	174	225	116	144	153	150	152	152	183
June.....	176	234	116	144	154	150	152	152	202
July.....	178	247	117	144	154	150	152	152	220
August.....	183	251	118	145	155	150	153	152	223
September.....	187	255	118	145	157	151	154	153	239
October.....	191	259	119	146	158	151	155	154	220
November.....	194	273	120	146	160	151	156	155	223
December.....	197	279	120	147	162	153	158	156	223
1943—January.....	199	291	121	149	163	155	160	158	223
February.....	202	286	121	150	165	157	162	160	223
March.....	203	287	122	151	167	158	163	161	223
April.....					168	161	165	162	230

Year and month	Index of prices received by farmers (August 1909-July 1914=100)								Ratio, prices received to prices paid, interest and taxes
	Grains	Cotton and cotton-seed	Fruits	Truck crops	Meat animals	Dairy products	Chickens and eggs	All groups	
1925.....	157	177	172	153	141	153	163	156	92
1926.....	131	122	138	143	147	152	159	145	86
1927.....	128	128	144	121	140	155	144	139	84
1928.....	130	152	176	159	151	158	153	149	89
1929.....	120	144	141	149	156	157	162	146	87
1930.....	100	102	162	140	134	137	129	126	79
1931.....	63	63	98	117	92	108	100	87	62
1932.....	44	47	82	102	63	83	82	65	53
1933.....	62	64	74	105	60	82	75	70	59
1934.....	93	99	100	103	68	95	89	90	70
1935.....	103	101	91	125	117	108	117	108	83
1936.....	108	100	100	111	119	119	115	114	89
1937.....	126	95	122	123	132	124	111	121	90
1938.....	74	70	73	101	114	109	108	95	75
1939.....	72	73	77	105	110	104	94	92	74
1940.....	85	81	79	114	108	113	96	98	78
1941.....	96	113	92	144	144	131	122	122	91
1942.....	119	155	125	199	189	152	151	157	103
1942—April.....	120	158	118	158	190	142	131	150	99
May.....	120	159	131	152	189	143	134	152	100
June.....	116	153	148	169	191	141	137	151	99
July.....	115	155	131	200	193	144	145	154	101
August.....	115	151	126	256	260	151	156	163	107
September.....	119	156	129	191	195	156	166	163	107
October.....	117	158	134	226	200	165	173	169	110
November.....	117	160	127	238	197	171	178	169	109
December.....	124	162	151	293	196	175	183	178	114
1943—January.....	134	164	139	277	205	177	185	182	115
February.....	138	163	156	301	214	179	170	178	111
March.....	143	166	172	302	218	180	171	182	113
April.....	146	167	189	291	218	180	173	185	114

<sup>1</sup> Federal Reserve Board, adjusted for seasonal variation. Revised September 1941.

<sup>2</sup> Total income, adjusted for seasonal variation. Revised March 1943.

<sup>3</sup> Bureau of Labor Statistics.

<sup>4</sup> Bureau of Labor Statistics index with 1926=100, divided by its 1910-14 average of 68.5.

<sup>5</sup> Revised. <sup>6</sup> Preliminary.

NOTE.—The index numbers of industrial production and of industrial workers' income shown above are not comparable in several respects. The production index includes only mining and manufacturing; the income index also includes transportation. The production index is intended to measure volume, whereas the income index is affected by wage rates as well as by time worked. There is usually a time lag between changes in volume of production and workers' income, since output can be increased or decreased to some extent without much change in the number of workers.